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**JOHN H. HOPPS RESEARCH SCHOLARS PROGRAM**

**Robert Haynes  
MOREHOUSE COLLEGE INC.**

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**12/16/2014  
Final Report**

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**Dr. John H. Hopps Jr. Defense Research Scholars Program**

**Morehouse College**



**Final Performance Report**

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## **ABSTRACT**

Since its inception in the 2006 – 2007 academic year, nearly two hundred students have participated in the Dr. John H. Hopps Jr. Defense Research Scholars Program. The knowledge and experience that is obtained by participating in the Hopps Research Scholars Program has provided students with transformative academic, laboratory and life skills that will be applicable in every aspect of their lives in the future. Rigorous training is required to sufficiently prepare them to enter graduate school, and essentially be at the forefront of scientific discovery in the future. However, they are also expected to go beyond the finish line at graduation and prepare to be of service to their country in their impending research careers. A strong commitment to excellence requires that Hopps Scholars are challenged to demonstrate exceptional performance in the classroom, to participate in meaningful research experiences and are encouraged to seek enlightening opportunities to develop their character and unleash their many talents. As Morehouse College continues to address the dearth of African American and other minority male students in Science, Technology, Engineering and Mathematics (STEM) research and in the workforce, it is very rewarding to see Hopps Scholars become a presence in producing manpower to address the nation's STEM needs. Included in this final performance report are the scholarly pursuits (featuring the 5<sup>th</sup> cohort) of Hopps Scholars, current updates and program highlights since the last report.

## INTRODUCTION

The Dr. John H. Hopps Jr. Defense Research Scholars Program at Morehouse College has trained and mentored nearly two hundred Black males for careers in Science Technology Engineering and Mathematics (STEM) fields. It continues to develop a cadre of competitive scholars to advance the nation's core federal and the Department of Defense's mission of increasing minority participation in scientific research career fields as well as increasing underrepresented minority students in emerging scientific and technological fields.

The fifth cohort, an unusually large and diverse group of twenty-four talented graduating scholars, included four biology majors, one chemistry major, four math majors, seven computer science majors, three physics majors and one psychology major. Four scholars are getting dual degrees in physics and engineering from the University of Michigan. This cohort's diversity was apparent in the selection of their majors and their college achievements. Eight were inducted into the Phi Beta Kappa Honor Society, two were members of the Golden Key Society and seven were listed as having made the honor roll and the Dean's List at Morehouse. The three physics majors were all inducted in the Sigma Pi Sigma Society, the Physics Honor Society. Several Hopps Scholars distinguished themselves through their department majors by achieving awards of excellence.

This cohort shined scholastically, with the majority choosing to pursue graduate schools others chose to strengthen their research careers in innovative, and entrepreneurial ways. However, we believe, with an additional year of research experience some will gain entry into top tier research institutions. Several of the students indicated that they would like to take the year off to work while others planned on strengthening their applications by broadening their research skills in post baccalaureate programs. Nevertheless, the remarkable achievements and tenacity of this cohort suggests that with the proper guidance and support of a research training program such as the Hopps Scholars Program, underrepresented minorities, particularly African-American males, will exceed all expectations as they steadily begin to positively impact the number of minorities entering research careers.

In order to ensure that the Hopps Scholars Program continues to offer its scholars strong, educational, research support and opportunities, certain improvements to the program were recommended and have been implemented. Their effectiveness has already been observed. The first was conducting an external evaluation of the program in order to provide pertinent feedback concerning the scholars, their activities, the effectiveness of mentoring and the overall progress of the program. The Sage Fox Company was hired in June 2014 to begin the evaluation process. Next, the Project Coordinator position was divided and two people were hired to help meet the needs of the program. One Program Coordinator is developing an extensive tracking mechanism allowing the Hopps Scholars alumni, and current students to be included in program research activity and allowing them to keep the program abreast of their current endeavors. An update of the website has also occurred to make it more interactive. The other Project Coordinator directs assists in the planning of program events including the Hopps Scholars graduation banquets, symposiums, recruitment fairs, and seminars.

Included in this final performance report are the scholarly pursuits (featuring the 5<sup>th</sup> cohort) of Hopps Scholars, current updates and program highlights since the last report. As always, we remain grateful to the U.S. Department of Defense for partnering with Morehouse College through its longstanding support of this model in undergraduate STEM education.

### **2013 – 2014: HOPPS SCHOLARS PROGRAM 5<sup>TH</sup> COHORT'S ACADEMIC CREDENTIALS, ACADEMIC/RESEARCH PROGRESS, AND ACCOMPLISHMENTS**

The 5<sup>th</sup> Cohort of Hopps Scholars matriculated at Morehouse College as seniors during the 2013 – 2014 academic year. The following list provides a biographical sketch of each graduating senior of the 5<sup>th</sup> cohort, and summarizes his academic and research progress.

#### **Omari Baruti** (Chemistry)

##### Past Research Experience

- Effects of Hypoxia on Chondrocytes, Cornell University (Summers 2011 & 2012)
- Identifying Co-activator Subunits in Yeast during Transcription, University of Michigan (Summer 2013)
- Using hydrogel PVCL as a drug delivery vehicle, Morehouse College Chemistry Department [Academic Year 2013---14 (Mendenhall)]

##### Post-Graduation Plans

- Ph.D. Program in Chemical Biology at the University of Michigan

##### Awards/Acclamations

- Cum Laude
- Honor Roll
- Deans List
- Presidential Ambassador

#### **David Cherry** (Computer Science)

##### Past Research Experience

- Optimizing TiO<sub>2</sub> Nanotube Arrays, Oak Ridge National Laboratory. (Summer 2011)
- Shape---based Course Grained Actin Filaments, University of Chicago. (Leadership Alliance, summer 2012)
- RVO Collision Avoidance in Unity 3D at the University of Minnesota DREU Program. (Summer 2013)

##### Post-Graduation Plans

- Doctoral Program in Human Centered Computing at Clemson University

##### Awards/Acclamations

- Phi Beta Kappa
- Magna cum Laude
- Honor Roll
- 3<sup>rd</sup> Place Poster Presentation, Richard Tapia Conference Celebrating Diversity in Computing.

**Jordan Clark** (Mathematics)

Past Research Experience

- Wind Turbines (Electrical Engineering), the University of Notre Dame (Summer 2011)
- Combinatorics, Math Sciences Research Institute (Summer 2012)
- Knot Theory, Louisiana State University (Summer 2013)

Post-Graduation Plans

- Doctoral Program in Mathematics, University of Georgia

Awards/Aclamations

- Phi Beta Kappa
- Cum Laude
- Multiple Math Course Awards for Highest Grade

**Bernard Dickens III** (Computer Science)

Past Research Experience

- Army Research Laboratories, Adelphi, MD (Summers 2012 and 2013)
- Morehouse College Computer Science Department [Academic Year 2010---11 (Johnson), 2011-12 (Perry), 2012-13 (Gosha), 2013---14 (Perry)]

Post-Graduation Plans

- Doctoral Program in Computer Science, the University of Chicago

Awards/Aclamations

- Phi Beta Kappa
- Highest Grade Point Average Award: Computer Science Department (2014)
- Cum Laude
- Honorable Mention: Microsoft Imagine Cup (2012)

**Bakari Hassan** [Dual Degree: Applied Physics (MC) and Aerospace Engineering (UM)]

Past Research Experience

- Clark Atlanta University Center for Microelectronics and Photonics (summer 2009, Academic Year 2009-10)
- Ecolè Polytechnique Optics “City of Lights” Research Program (Summer 2011)
- University of Michigan Plasma dynamics and Electric Propulsion Laboratory (summer 2012, Academic Year 2011-12, 2012-13)
- Jet Propulsion Laboratory Electric Spacecraft Propulsion Research (Summer 2012)

Post-Graduation Plans

- Employed at MIT Lincoln Laboratory: Thin Film Creep Characterization
- Applying to Doctoral Programs in 2015

Awards/Aclamations

- Magna cum Laude
- Honor Roll
- Dean’s List
- Sigma Pi Sigma National Physics Honor Society
- Sigma Gamma Tau Aerospace Honors Society

- Engineering Power Scholar

### **Cedric Hill** (Physics)

#### Past Research Experience

- Mechanical Engineering, University of New Hampshire (Summer 2011)
- Physics Research Experience for Undergraduates, University of Notre Dame (Summer 2012)
- Research Experience for Undergraduates in Costa Rica, the School for Field Studies (Summer 2013)
- NASA Reduced Gravity Flight (Academic Year 2013)
- Materials Science Research, Georgia Institute of Technology (Academic Year 2012-2013)
- M.O.R.E. Lab, Department of Physics, Morehouse College (Academic Year 2013-2014)

#### Post-Graduation Plans

- Doctoral Program in Bioengineering at Rice University Awards
- Sigma Pi Sigma National Physics Honor Society
- Honor Roll (2x),
- Dean's List (2x)

### **Tevin Hughley** (Biology)

#### Past Research Experience

- Research Experience for Undergraduates, University of North Texas Health Sciences Center (Summers 2011 and 2012)
- Research Experience for Undergraduates, Tuskegee University (Summer 2013)
- Morehouse College (Academic Year 2011-2014)

#### Post-Graduation Plans

- Post Baccalaureate Research Education Program (PREP) at University of California Santa Cruz

#### Awards/Acclamations

- Cum Laude
- Deans List: Fall 2010, spring 2011, fall 2013, Spring 2014
- FASEB Award for Top Poster Presentation at ABRCMS 2013
- Alpha Lambda Delta Freshman Honor Society

### **Nelson Jenkins** [Dual Degree: Applied Physics (MC) and Mechanical Engineering (UM)]

#### Past Research Experience

- M.O.O.R.E Laboratory, Morehouse College
- University of Wisconsin, Madison (Summer 2010)
- Carnegie---Mellon University (Summer 2011)

#### Post-Graduation Plans

- Employed as a mechanical engineer at Allegion.
- Applying to graduate programs in industrial design and mechanical engineering

#### Awards/Acclamations

- Cum Laude
- Dean's List: 2008-2011
- Sigma Pi Sigma National Physics Honor Society



**Toneé Jones** (Biology)

Past Research Experience

- Research Experience for Undergraduates, University of Chicago (Summer 2011)
- Research Experience for Undergraduates, Northwestern University (Summer 2012)
- Leadership Alliance Research Experience for Undergraduates, Harvard University (Summer 2012)

Post-Graduation Plans

- Applying to Doctoral Programs in Biology

Awards/Acclamations

- Cum Laude
- Recognition for Excellence in Poster Presentation (Molecular/Computational Biology), the Annual Biomedical Research Conference for Minority Students (ABRCMS)
- Hopps Program Student President, 2014

**Ryan Leon** [Dual---Degree: Applied Physics (MC) & Nuclear Engineering (UM)]

Past Research Experience

- Leaf Area Index Estimation for Terrestrial LIDAR, University of Washington (Summer 2009)
- Proton Acceleration from Ultra-fast High Intensity Lasers on Aerogel Targets, University of Michigan (Summer 2010)
- Multi-Layer Mirror Design for Ultra-Soft X-Rays, Ecole Polytechnique (Summer 2011)

Post-Graduation Plans

- Post Baccalaureate Research Internship at Los Alamos National Laboratory
- Applying to Doctoral Programs

Awards/Acclamations

- Cum Laude
- Presidential Ambassador
- Outstanding Poster Presentation (ABRCMS 2010)

**DeLorian Malone** (Biology)

Past Research Experience

- Lawrence Livermore National Laboratory, Department of Chemistry, Morehouse College (Academic Year 2012-2013)

Post-Graduation Plans

- Applying to Doctoral Programs in Molecular Engineering

Awards/Acclamations

- Cum Laude
- Principal Bassist of the AUC Symphony Orchestra

**Jerrell Mure** (Mathematics)

Past Research Experience

- Half-life measurements of U235, Lawrence Livermore National Laboratory (Summers 2011 and 2012)
- Mathematical Modeling involving toxicology, Research Experience for Undergraduates at North Carolina State University (Summer 2013)

Post-Graduation Plans

- Doctoral Program in Applied Mathematics at Rensselaer Polytechnic Institute

Awards/Aclamations

- Phi Beta Kappa
- Magna cum Laude
- Golden Key
- Achievement Reward for College Scientists (ARCS) Scholar
- Multiple Math Course Awards for Highest Grade

**Francisco Nunez** (Computer Science)

Past Research Experience

- Computational Seismology, the Leland Lab, Stanford University (Summer 2012)
- Plasma Physics Research, the University of Michigan, Optics in the City of Light Program (Summer 2013)
- Bioinformatics Research, Spelman College (Fall & Spring 2012)
- E-Stadium Vending Research, Georgia Institute of Technology (Spring 2013)

Post-Graduation Plans

- Doctoral Program in Integrated Neuroscience at Northwestern University (one year deferment)

Awards/Aclamations

- Phi Beta Kappa
- Summa cum Laude
- Dean's List
- Achievement Reward for College Scientists (ARCS) Scholar
- Achievement Reward for College Scientists (ARCS) Scholar Leadership Award (2013-2014)
- Hopps Program Student Vice President, 2014
- Presidential Ambassador
- University Innovation Fellow (2014)
- 3<sup>rd</sup> Place oral presentation, 2013 Morehouse College Innovation Expo
- Top Ranking Computer Science Major
- Mapp Symposium Senior of the Year

**Aparecio Peggins** (Psychology)

Past Research Experience

- Attachment Styles in Romantic Relationships, University of New Hampshire (Summer 2011)
- Cocaine Use Reduction with Buprenorphine, Howard University (Summer 2012)
- Investigating Memory Coding Neurons in the Prefrontal Cortex and Thalamus Using Electrophysiology (Summer 2013)

- The Role of GABA in Regulating Circadian Rhythms, Morehouse College [Academic Year 2013-2014 (Hummer)]

#### Post-Graduation Plans

- Applying to Ph.D. programs in Neuroscience

#### Awards/Acclamations

- Cum Laude

### **Andrew Peterson** (Physics)

#### Past Research Experience

- Research Experience for Undergraduates in Electrical Engineering, Colorado State University (Summer 2011)
- Naval Research Laboratories (Summer 2013)

#### Post-Graduation Plans

- Applying to Ph.D. programs in Neuroscience

#### Awards/Acclamations

- Phi Beta Kappa
- Magna cum Laude
- Sigma Pi Sigma Physics Honor Society

### **John Porter III** (Computer Science)

#### Past Research Experience

- Virtual Spiritual Advisor, Morehouse College [Academic Year 2012-13 and 2013-14 (Gosha)]

#### Post-Graduation Plans

- Doctoral Program in Human---Centered computing at Clemson University

#### Awards/Acclamations

- Cum Laude
- Golden Key Club Member

### **Octavious Talbot** (Mathematics)

#### Past Research Experience

- Pacific Undergraduate Research Experience (PURE) at Hilo, Hawaii
- Mathematical Theoretical Biology Initiative (M.I.B.I.) at Arizona State University

#### Post-Graduation Plans

- Summer Program in Biostatistics at Emory University
- Doctoral Program in Biostatistics at Harvard University

#### Awards/Acclamations

- Phi Beta Kappa
- Magna cum Laude
- Achievement Reward for College Scientists (ARCS) Scholar

### **Austin Tucker** (Computer Science)

#### Past Research Experience

- Using robots to simulate user-engaged situations, Tufts University (Summer 2011)
- Design and Use of Prescription Medication Scheduling Apps, Clemson University (Summer 2012)
- Teaching Parallel Programming to Programmers Using Python, Georgia Institute of Technology (Summer 2013)
- Lean Cosine Differential Equations, Clark-Atlanta University (Academic Year 2010-11)
- Providing outreach for students with a focus in graduate education, Morehouse College (Academic Year 2011-12)
- Georgia Institute of Technology (Academic Year 2013-2014)

#### Post-Graduation Plans

- Hopps Program Summer Research Internship at AFRL (Eglin Air Force Base)
- Applying to Doctoral Programs in Computer Science

#### Awards/Acclamations

- Cum Laude
- Excellence in Mathematics (Set Theory, Calculus II)
- Presidential Ambassador

### **Tré Wells** (Mathematics)

#### Past Research Experience

- University of Chicago [Leadership Alliance (Summer 2012)]
- Princeton University [Leadership Alliance (Summer 2013)]
- Clark-Atlanta University [Academic Year 2010-11 through 2013-14 (Mickens)]

#### Post-Graduation Plans

- Doctoral Program in Economics at the University Of Virginia

#### Awards/Acclamations

- Phi Beta Kappa
- Magna cum Laude
- Morehouse Mathematics

#### Awards/Acclamations

- Honor Roll (spring 2011, fall 2012, and spring 2013)
- Top 14 of 2014

### **Shawn Wilkinson** (Computer Science)

#### Past Research Experience

- Navigation Behavior of the Madnca Sexton Moth, University of Washington (Summer 2012)
- Simulations and Flight Data Processing, Hopps Program/DoD Summer Research Internship, Aberdeen Proving Grounds (Summer 2013)

#### Post-Graduation Plans

- Building a decentralized cloud storage company
- Applying to graduate school after company is stable

#### Awards/Acclamations

- Cum Laude
- ARCS Scholar
- Won Texas Bitcoin Conference Hackathon (2014)

**Dwight Williams** [Dual---Degree: Applied Physics (MC) and Electrical Engineering (UM)]

Past Research Experience

- UC Berkeley (Summer 2010)
- University of Puerto Rico (Summer 2011)

Post-Graduation Plans

- Employed at AirWatch By VMware of Facebook.
- Applying to graduate programs

Awards/Aclamations

- Cum Laude

**Jeroson Williams** (Biology)

Past Research Experience

- Bench to Bedsides Summer Bridge Program, Keck School of Medicine/University of Southern California (Summer 2011)
- MSTP---PREP, University Of California, San Diego (Summer 2012)
- NASA National Space Biomedical Research Institute (Summer 2013)

Post-Graduation Plans

- Applying to Ph.D. Programs in Biology/Biomedical Science

Awards/Aclamations

- Cum Laude
- Honor Roll
- Dean's List
- Psi Chapter of Omega Psi Phi Fraternity, Incorporated Man of the Year Award

**Christopher Wills** (Physics)

Past Research Experience

- Oak Ridge National Laboratory (Summer 2011)
- Morehouse College (Summer 2012)
- Université Joseph Fourier, Grenoble, France (Summer 2013)

Post-Graduation Plans

- Doctoral Program in Mechanical Engineering at Rice University

Awards/Aclamations

- Sigma Pi Sigma Physics Honor Society
- Presidential Ambassador
- 2011 ABRCMS Award recipient

**Christopher Wright** (Computer Science; Mathematics minor)

Past Research Experience

- Hopps Program Department of Defense Summer Research Internship, Eglin AFB (Summer 2013)

Post-Graduation Plans

- Hopps Program Department of Defense Summer Research Internship, Eglin AFB
- Applying to PhD Programs in Computer Science

#### Awards/Acclamations

- Cum Laude
- Excellence in Mathematics Award (Calculus II and Calculus III)
- Dean's List

Twenty-four scholars from the fifth cohort graduated May of 2014, those that did not are either pursuing dual degrees (4) or were unable to graduate due to extenuating circumstances. Table 2 summarizes all research experiences of each member of the 5<sup>th</sup> cohort of Hopps Scholars; graduating, current and removed students.

**TABLE 2. RESEARCH EXPERIENCES OF 5<sup>TH</sup> COHORT SCHOLARS OF GRADUATING 2013-2014 ACADEMIC YEAR**

NAME	MAJOR	RESEARCH LOCATION
Omari Baruti	Chemistry	Cornell University, University of Michigan
David Cherry	Computer Science	Oak Ridge National Laboratory, University of Chicago, University of Minnesota
Jordan Clark	Math	University of Notre Dame, Louisiana State University
Benard Dickens	Computer Science	Army Research Lab (Delphi)
Bakari Hassan	Applied Physics & Engineering (Dual Degree)	Clark Atlanta University Center, Ecolè Polytechnique, University of Michigan
Cedric Hill	Physics	University of Notre Dame, NASA, Georgia Institute of Technology, Costa Rica School of Field Studies
Tevin Hughley	Biology	University of North Texas Health Sciences Center, Tuskegee University
Tonee Jones	Biology	University of Chicago , Northwestern University, Harvard University
Nelson Jenkins	Physics & Engineering (Dual Degree)	University of Michigan
Ryan Leon	Applied Physics & Engineering (Dual Degree)	University of Washington, University of Michigan, Ecole Polytechnique
DeLorian Malone	Biology	Morehouse College
Khabir Muhammad	Computer Science	Boeing

Jerrell Mure	Physics	Livermore National Laboratory, North Carolina State University
Francisco Nunez	Computer Science	Stanford University, University of Michigan, Spelman College, Georgia Institute of Technology, University of Michigan
Aparecio Peggins	Psychology	University of New Hampshire, Howard University
Andrew Peterson	Physics	Colorado State University, US Navy Research Lab (Washington D.C.)
Octavious Talbot	Math	Hilo Hawaii, Arizona State University
Jamal Thorne	Computer Science	University of Wyoming
Austin Tucker	Computer Science	Tufts University, Clemson University, Clark-Atlanta University, Georgia Institute of Technology
Tre Wells	Math	University of Chicago, Clark-Atlanta University, Princeton University
Shawn Wilkerson	Computer Science	University of Washington, Army Research Lab @ Aberdeen
Dwight Williams	Physics (Dual Degree)	UC Berkeley, University of Michigan
Jeroson Williams	Biology	University of Southern California, University Of California, San Diego, NASA Biomedical Research Institute, Morehouse School of Medicine
Christopher Wills	Physics	Oak Ridge National Laboratory, Morehouse College, Université Joseph Fourier, Louisiana State University

## PROGRAM ACTIVITIES

### *5th Annual Hopps Training Symposium 2014*

The 5<sup>th</sup> Annual Hopps Research Training Symposium and Recruitment Fair, held on February 27-28, 2014 at Morehouse College, was a huge success. The theme, *“Mission Critical: Equipping Minority Students to Lead a STEM Innovation Revolution”* reverberated throughout the two day symposium. The Welcome and Keynote address was given by the distinguished Mr. Lloyd Reshard, Retired Chief of the Munitions Aerodynamics Sciences Branch of the U. S. Air Force Laboratories. He retired after 26 years with the Air Force Research Laboratory, and the last 6 years as Chief of the Munitions Aerodynamics Sciences Branch, formerly flight vehicle integrations branch. He was the first African-American engineering branch chief of the munitions directorate. His remarks, titled *“Leveraging your Network to Power the STEM Innovation Revolution”* were well received.

The Workshop, titled *“Understanding Interventions that broaden Participation in Research Careers”*, “a symposium highlight, was facilitated by Dr. Anthony L. DePass, Professor of Biology at Long Island University. Dr. DePass has nearly 20 years of experience in grants and program management; and currently has over \$5 million in active grants. Dr. DePass led the implementation of several training and career development activities spanning the undergraduate to the professional levels for participants from over 140 institutions.

The Research Recognition Luncheon was led by Dr. Vernon Morris, Howard University, Professor of Chemistry and Professor of Atmospheric Sciences (HUPAS) and the Environmental Engineering Program. Dr. Morris has been responsible for raising over \$50 million in research funding, published over sixty refereed papers and conference proceedings, founded the graduate program in Atmospheric Sciences at Howard and guided research for more than 100 students at the graduate, undergraduate and high school levels.

Some of the panel discussions addressed were the *“The Ins and Outs of Graduate Schools”*, and *“How to Win the Nobel Prize and Change the World”*, led by Dr. David S. Sholl, Chair School of Chemical & Biomolecular Engineering at the Georgia Institute of Technology and *“Life after Graduate School”*, a career panel moderated by Dr. Rosalind Gregory-Bass, Assistant Professor of Biology at Spelman College. Our final panel was led by Dr. Wallace Sharif, Assistant Professor of Biology at Morehouse College. All of the panel discussions pertained to maximizing opportunities for under-represented minorities as well as the economic inclusion of minorities in STEM careers. The Morehouse Hopps Alumni Panel included seven Morehouse graduates who are currently in various levels of graduate school. Their candid remarks were very informative to the younger cohorts. The following Hopps Alumni served as panelists:

1. Delawrence Sykes, 2012 – 3<sup>rd</sup> Year graduate student at Indiana University
2. Jabari Elliott, 2012 – 2<sup>nd</sup> Year Ph.D. student at Washington University, St. Louis
3. Vallmer Jordan, 2012 – 1<sup>st</sup> Year graduate student at Louisiana State University
4. Mykel Green, 2012 – 2<sup>nd</sup> Year Ph.D. student at Georgia Institute of Technology
5. Pierce Gordon, 2012 – 2<sup>nd</sup> Year Ph.D. student at UC Berkeley



6. Wallace Derricotte, 2013 – 1<sup>st</sup> Year Chemistry graduate student, Emory University
7. David Brickler, 2013 – 1<sup>st</sup> Year Computer Science graduate student, Clemson University.

This Symposium provided nearly (50) Hopps Scholars, other minority students and scientists opportunities for networking, receiving critiques of their research presentations, and interacting with visiting faculty from graduate schools and officials from the Department of Defense. These engagements provided important feedback to our students as they continue to present their research findings at other scientific conferences and symposia.

Table 4 details the oral and poster presentations given by Hopps Scholars during the 5<sup>th</sup> Annual Hopps Research Training Symposium and Recruitment Fair.

**TABLE 4. SCHOLAR ORAL/POSTER SESSIONS 2013 – 2014**

NAME	TOPIC	PRESENTATION TYPE
Tonee Jones	Characterizing the Function of Mycobacterium Tuberculosis Efflux Pumps In a Mycobacterium Smegmatis Overexpression System	Oral
Aparecio Peggins	Cocaine Use Reduction with Buprenorphine	Oral
Francisco Nunez	Hydrodynamic Modeling of Laser-Target Interaction: Plastic Thin Foils	Oral
Jamal Thorne	Evaluating Cognitive Workload for 3D Volumetric Scientific Visualization	Oral
David Cherry	RVO Collision Avoidance in Unity 3D	Poster
Bernard Dickens	Computational Analysis of Anomalous Sectors in Human User Input	Oral
Phillip Stephens	Understanding the Genetic Pathways Controlling Foraging Behavior in <i>C. Elegans</i> Using Double Mutant Analysis	Poster
Tevin Hughley	The effects of Angiotensin(1-7) on Okadaic Acid induced Tau phosphorylation	Poster
Cedric Hill	Leaf morphology as a function of regeneration in primary and secondary forests	Poster
Jeroson Williams	Investigating oleic acid's role in reducing the expression of the mitochondrial calcium	Poster

	uniporter in diabetic cardio myocytes	
Jerrell Mure	The Effect of Structure on Physiologically Based Pharmacokinetic Modeling	Poster
Christopher A. Wills	Electron paramagnetic Resonance Investigations of Mononuclear and Dinuclear Copper (II) Complexes	Poster
Andrew Peterson	Static and Spinning NMR Spectra of Metal Fluorides at Varying Magnetic Fields	Poster

### *Tour of University of Washington*

March 12<sup>th</sup> through the 15<sup>th</sup> 2014, Hopps Scholars were invited to participate in a trip to the CSNE Symposium at University of Washington (UW) to get a closer look at the graduate school opportunities. Some scholars were given the opportunity to present their research using oral and poster presentations. During their trip to Seattle the scholars learned about UW's Tech Sandbox Competition. During a Tech Sandbox Competition students are supposed to create projects that demonstrate the core principles of engineering, and create things that can work as educational demos. Scholars witnessed the competition, met with STEM faculty, toured the campus and gained valuable information about the graduate school and programs.

### *5<sup>TH</sup> Cohort's Graduation Banquet 2014*

The 5<sup>TH</sup> Cohort's Graduation Banquet was held Saturday, May 17, 2014 at the Ray Charles Performing Arts Center on the campus of Morehouse College. The banquet consisted of a reception and dinner for parents, faculty, mentors and guest honoring the graduating Hopps Scholars seniors. This included a poster presentation exhibit and program, held in the auditorium of the Ray Charles Performing Arts Center, highlighting the graduates' majors, honors/awards and their acceptance to a graduate program. The keynote speaker of the event was Dr. Jimmie Lee Davis, Jr., the Lead Systems Engineer for the Mitre Corporation, creating new technology for the Department of Defense. Tuskegee Airmen were in attendance along with 150 other family, faculty, staff and friends.

### *SageFox Evaluation*

SageFox Consulting group was contracted to conduct a summative evaluation of the Hopps program. Evaluation activities included collecting qualitative and quantitative feedback on the program from the perspective of Hopps Program staff, alumni and existing participants. Over the course of the last five months, SageFox has successfully obtained IRB approval for all qualitative and quantitative data collection activities, developed, tested and launched the online

alumni survey instrument and conducted focus groups / interviews with existing participants and staff. SageFox has begun analysis of these data (qualitative and quantitative) with the aim of producing two publishable documents capable of showcasing the programs successes and lessons learned. The survey is currently live, and as such, SageFox is in the process of collecting data on alumni from across all former Hopps Program participants. Analysis of survey feedback will begin once all of the data has been received and downloaded from the online survey platform. Data will then be disseminated in the form of a final report to Hopps Program Staff, which will then be forwarded to the Department of Defense.

## **DoD INVESTMENT OUTCOMES**

Since its inception in 2006, the Hopps Scholars Program has continued to gain prestige as an undergraduate mechanism to increase minority representation in STEM research, and for charting a pathway to ensure minority participation in emerging scientific and technology fields. Table 3 below lists the 5<sup>th</sup> Cohort's Alumni and their current academic or professional endeavors.

**TABLE 3. POST BACULARATE STATUS OF 5<sup>TH</sup> COHORT SCHOLARS**

<b>NAME</b>	<b>ACADEMIC PROGRESS/STATUS</b>
Omari Baruti	Doctoral Program, Chemical Biology, U. of Michigan
David Cherry	Doctoral Program, Human-Centered Computing, Clemson U
Jordan Clark	Doctoral Program, Mathematics, U of Georgia
Bernard Dickens, III	Doctoral Program, Computer Science, U of Chicago
Cedric Hill	Doctoral Program, Bioengineering, Rice University
Tevin Hughley	Post Baccalaureate Research Education Program, University of California, Santa Cruz
Tonee' Jones	Applying to Doctoral Programs in Biology
DeLorian Malone	Applying to Doctoral Programs in Molecular Engineering
Jerrell Mure	Doctoral Program in Applied Math at Rennselaer Polytechnic Institute
Francisco Nunez, Jr.	Doctoral Program in Integrated Neuroscience at Northwestern University & Start-Up Company
Aparecio Peggins	Applying to Doctoral Programs in Neuroscience
Andrew Peterson	Master's Program in Management at Wake Forest University
John Porter, III	Doctoral Program in Human-Centered Computing at Clemson University
Octavious Talbot	Doctoral Program in Biostatistics at Harvard University
Austin Tucker	Hopps Program/DoD Research Internship at Air Force Research Laboratories
Tre' Wells	Doctoral Program in Economics at the University of Virginia
Shawn Wilkinson	Building a decentralized cloud storage company
Dwight Williams	Doctoral Program in Applied Physics at U. of Michigan
Jeroson Williams	Applying to Doctoral Programs in Biomedical Science

Christopher Wills	Doctoral Program in Mechanical Engineering at Rice University
Christopher Wright	Hopps Program/DoD Research Internship at Air Force Research Laboratories
Bashir Auld	Mathematics/Physics major, withdrew due to illness

## PROGRAM RESEARCH MENTORS

Hopps Scholars Program research mentors support the scholars by developing and enhancing their research skills and experience working in a scientific lab. The mentors have diverse areas of expertise and also serve as role models to the scholars. Table 4 lists the program mentor's for the 2013-2014 academic year.

**TABLE 4. HOPPS RESEARCH MENTORS**

NAME	DEPARTMENT	EXPERTISE	SCHOLAR(S)
Juana Mendenhall	Assistant Professor of Chemistry	Polymer Chemistry, Biomaterials	Omari Baruti
Kinnis Gosha	Assistant Professor of Computer Science	Human Centered Computing	David Cherry, John Porter, Austin Tucker
Rudy Horne	Assistant Professor of Mathematics	Nonlinear Optical Phenomena	Jordan Clark, Jerrell Mure
Kenneth Perry	Professor and Chair of Computer Science	Noninvasive Fetal Electrocardiography	Bernard Dickens III, Shawn Wilkinson,
Brian Lawrence	Assistant Professor of Chemistry	Organic Chemistry	DeLorian Malone
Thomas Searles	Post-Doctoral Fellow of Physics	Applied Physics	Cedric Hill, Christopher Wills
Wallace Sharif	Assistant Professor of Biology	Cellular and Molecular Biology	Tevin Hughley
Gregory Ford	Assistant Professor of Biology	Brain injury and Strokes	Tonee Jones, Jeroson Williams
Sonya Dennis	Professor of Computer Science	Information Systems	Khabir Muhammad, Francisco Nunez, Jamal Thorne, Christopher Wright
Daniel Hummer	Assistant Professor of Psychology	Neurobiology of Circadian Entrainment	Aparecio Peggins
Duane Cooper	Professor and Chair of Mathematics	Mathematics student and teacher development	Octavious Talbot
Ronald Mickens	Professor of Physics (CAU)	Mathematics and Physics	Tre Wells
Mischelle Epps	Assistant Professor of Mathematics	Mathematics and Physics	Cornell Young

## **FUTURE OF THE PROGRAM**

The Dr. John H. Hopps Jr. Defense Research Scholars Program continues to inspire the next generation of minority research scientists. We are extremely proud of the Fifth Cohort's accomplishments and they continue to inform us of their status and achievements in graduate school and the work place. We plan to continue to assist them in their scholarly pursuits and help place those few members who continue to pursue entrance into graduate school in the near future. This particular Cohort has continued to serve the Hopps Program by mentoring their younger members and forming a supportive and cohesive unit among themselves. The SageFox Company has expanded their evaluation of the Hopps Scholars Program and the results will be shared with the Department of Defense immediately after it is finished. We have most recently held the 6<sup>th</sup> Annual Hopps Symposium and Recruitment Fair on October 27-28, 2014. Representatives from the Department of Defense and their researchers were invited so that they were able to maintain contact with the Scholars and keep them abreast of employment opportunities. Members of the fifth cohort also attended several national research conferences where they served as recruiters for their graduate schools. This included the Annual Biomedical Research Conference for Minorities in San Antonio, Texas in November 2014. Members of the 5<sup>th</sup> cohort are still eligible to spend summers at U.S. Air Force Research Laboratories such as Eglin Air Force Base in Florida and at U.S. Army Research Laboratories such as Aberdeen Proving Ground in Maryland. We are open to any suggestions offered to improve the Hopps Scholars Program and we are eternally grateful to the Department of Defense, Mrs. Evelyn Kent and Mr. Ed Lee for all of their guidance and dedication to the Hopps Scholars Program.